

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices

2nd. 176: 95, W.A.L.

ANNALS, MCH 95

1895 Y.

RECEIVED
2/23/96
T.H.

Trees and Trees

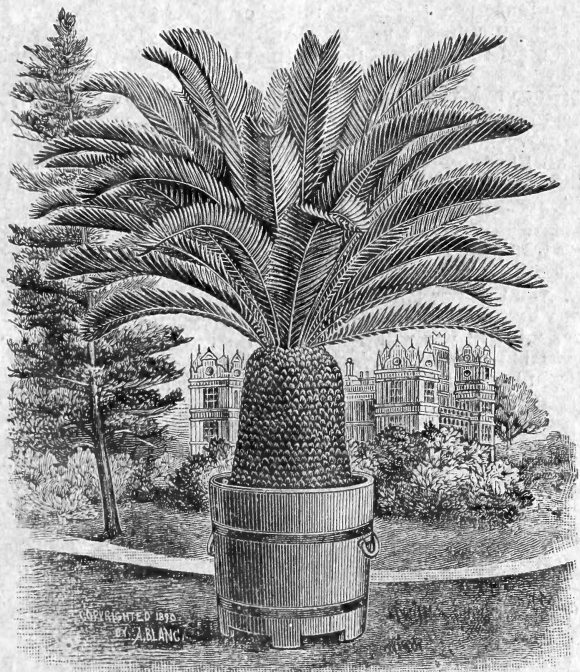
— AND —

HOW TO CARE FOR THEM

... WITH APPENDIX OF ...

Morris' Nursery Catalogue

A Book Prepared For Those Interested In Horticulture.



COPYRIGHTED 1895
BY A. BLANC

CYCUS REVOLUTA.

IMPORTANT.

Guarantee.—While we exercise the greatest care and dilligence to have all our Trees, etc., true to the label, and hold ourselves in readiness, on proper proof, to replace all such trees, etc., that may prove untrue to label, free of charge, or to refund the amount paid, it is mutually understood and agreed to between purchasers and ourselves, that our guarantee of genuineness shall in no case make us *liable* for any sum greater than that originally paid us for said trees, etc., that prove untrue.

Mistakes.—We make them; so does every one. We will cheerfully correct them if you will write to us. Don't refuse trees. Try to write to us good-naturedly; but if you cannot, then write anyway. Do not complain to anyone else nor let it pass. We want an early opportunity to make right any injustice that we may do, and faithfully promise *PROMPT* and *JUST* treatment of all claims presented.

We use the utmost care to prevent mistakes, but we sell our stock with the express understanding that should a mistake occur and any prove untrue to label, we will upon proper proof refund the money paid or refill the order free.

Correspondence is invited from all who are interested in planting.

Orders for 10 and under 30 at the 10 rate; for 30 and under 300 at the 100 rate; for 300 or more at the 1000 rate—no matter *how many* sorts or sizes, if not less than 10 of any one sort; thus, 30 plum, 10 Burbank 10 Redegg, will be at the respective 100 rates, and 300 at the respective thousand rates—or 300 apple, or 300 peach, or 300 grapes. Broken lots of less than 10 at the single rate

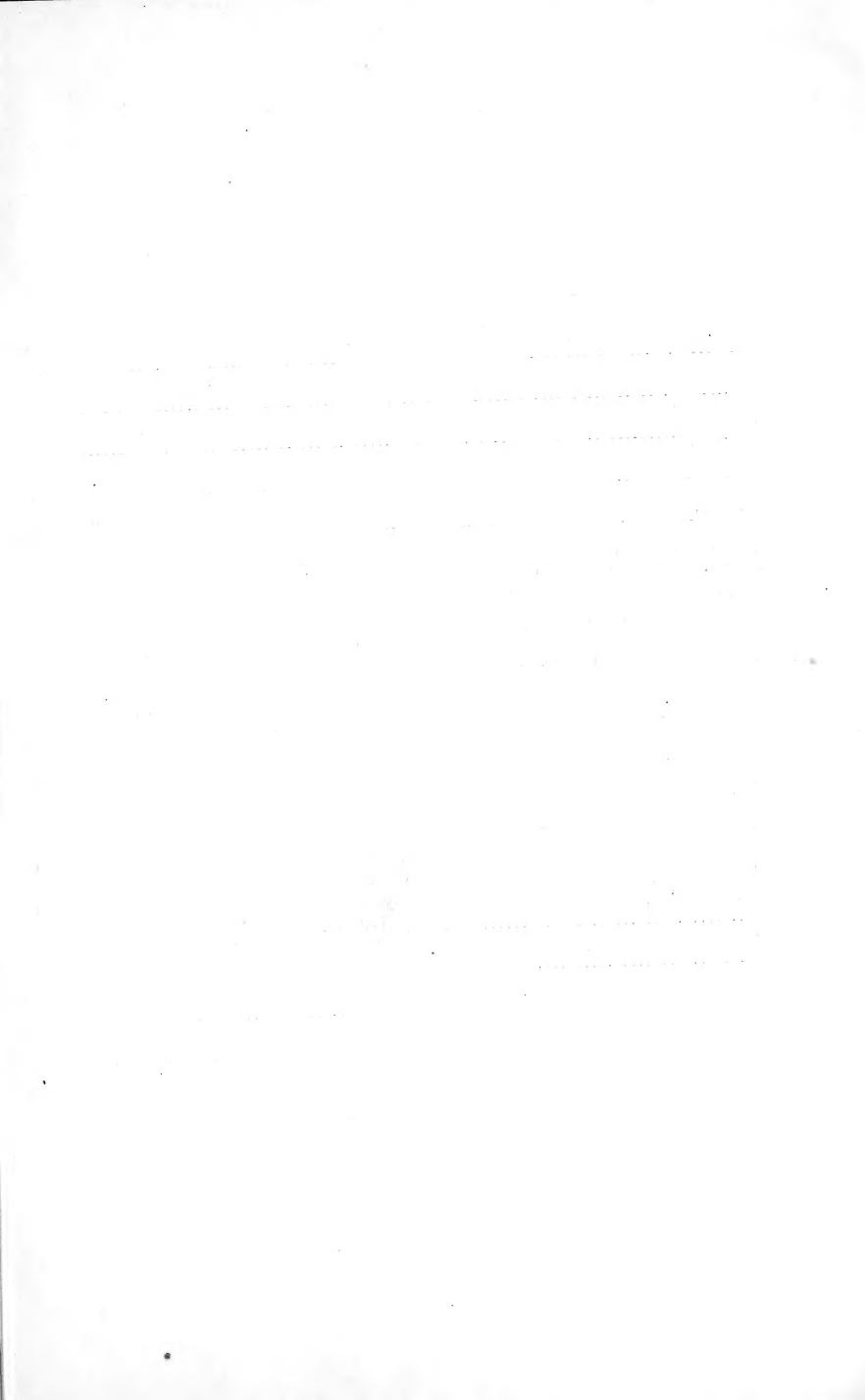
We tie Trees, in bundles of 10, Grapes and all Small Fruits, in bunches of 25, and bespeak your orders for unbroken bundles.

In handing you this our latest edition of a catalogue we have endeavored to make it of value to all interested in Horticulture, and bespeak your praise by patronage and trust you will not regret it as we are endeavoring to do a just and honest business.

Thanking you for past favors we remain your servants.

MORRIS NURSEY CO.,

San Bernardino, Cal.



TO OUR PATRONS.

SPECIAL QUOTATIONS in large quantities, and to the trade.

84 ACRES now in nursery, of all classes of nursery stock desired in Southern California. Deciduous Trees, Orange, Lemon and Citrons a specialty.

SITUATION. Three miles northwest of the City of San Bernardino, one and one-half miles northeast from Rialto, four miles northerly from Colton; and all wishing to visit nursery should give us due notice and we will meet them at any of the railroad stations.

TERMS: Cash; or satisfactory arrangements must be made for time.

POSTOFFICE. Our postoffice is San Bernardino. Telephone at Nursery.

SHIPMENTS. We ship by any route in Southern California, guaranteeing freight charges at customer's risk and released to \$5,00 valuation per 100 pounds to get the cheapest rate. We also bale, using tulle and completely cover, saving 50 per cent. to our customers on freight rates. We will not be responsible for delays of transportation companies, but will guarantee all stock in good condition while in our charge. If this is not satisfactory other instructions are necessary.

EXPERIENCE of these many years of *active nursery work* has given us much valuable information and experience in the handling of all classes of nursery stock in this hot, dry climate, only to be had by practice; and if the stock is properly handled, their prospects of growing is the best. The Orange stock that we put out has given wonderfully good satisfaction, and we claim a goodly share of experience in handling this class of stock.

REPLACING. Some persons so neglect or badly plant trees as to cause their loss, still they believe that Nurserymen should be responsible and replace them. If suggestions in GUIDE for planting, pruning and cultivating are followed, little or no loss will ensue, under ordinary conditions; but the planter must not expect us to take *his* risk. Nor can we be held responsible for bad seasons or other causes beyond human control, or be expected to insure trees living after having passed out of our hands and care.

FREE PACKING AND FREIGHT RATES. We bear all costs of packing for local shipments—an IMPORTANT item, often amounting to \$2 per 100 or more, for 4 to 5 ft. trees, and more for larger sizes. *Good Packing* pays—pays our customers; pays us. Stock scientifically packed for safe shipment to any part of the world, as can be seen by letters following. We pack for local shipments in tulle and completely cover; and release to \$5 valuation per 100 pounds which secures to our customers a one-half rate of what trees are generally billed at. We also use a power baler and do up our trees in such a shape that they will carry anywhere without exposure. Trees packed for long distance or several transfers a special charge will be made.

From Rev. A. C. Wright, M. E. Mission, Yang Chow, China, July 12, 1894
Messrs. Morris Bros.

Dear Sirs:—The fruit trees, vines, etc., you sent me last winter have done very well although they were nearly two months enroute. They reached us here in Central China in *good condition*. I put them out at once and have taken good care of them. Out of the fruit trees and grape vines only four died and the balance are growing nicely. About one-sixth of strawberries, only, survived the trip; but these are doing well. * * At least four-fifths of blackberries and raspberries lived and are growing rapidly. So we hope in a couple of years to have fresh California fruits growing here in Central China.

So much for our packing.

YOKOHAMA, JAPAN, JAN. 28, 1892.

O. M. Morris,

Dear Sir:—I arrived home after a two month's trip with my nursery stock and have unpacked the same, and distributed it according to directions. I find all the stock, even orange trees, in good condition. * * Thanking you for such liberal count and good packing I am

Yours sincerely,

G. (FRANK) MORTIA.

THE FOUNDATION IS EVERYTHING. "Some build on the sand"—but those that have the truths, build on solid foundations and are our successful orchardists. "Whole root, or piece root trees" is no longer a question among well posted orchardists. Knowledge has come of the experience of *leaders* among men—not only Secretary Morton, but Downing, Barry, Berckmans, and scores of other *authorities* say that the "whole root" system for apple and pear are so favorably known that there is no question of their superiority. Thus with the peach. With such authorities as above mentioned, we add Thomas and Meehan as authorities to the superiority of the Spanish Seedling Peach and we give below Mr. Meehan's article on this class or variety of peach, and what he can say of it, and he is an authority of world fame:

HARDINESS OF PEACH STOCK.

"Over two hundred years ago the Spaniards introduced the peach tree into Texas and Northern Mexico—seedlings were raised from these continually, until a race has been produced which is entirely free from all diseases which seem to be connected with trees raised in other sections. (Meaning in the eastern states—Ed.) Seedlings of these old Spanish peaches raise plants, which side by side with others, last for years, free from all disease; while those introduced from the North are short-lived and soon disappear. There is no doubt, from these facts that whole races may become enervated from some peculiarity in the method of cultivation, or from conditions of climate."

The above from Meehan's Monthly by Mr. Thos. Meehan. (Oct. '91.)

Race Distinction in peaches. The Persian race occupies the most northern position in our country, extending to the northern limits of peach-culture, and forming the bulk of the northern orchards. The Northern Chinese race occupies the lower portion of the range covered by the Persian, and some varieties succeeded, below it. This class produces very large fruit. The Spanish race occupies the entire range of the Northern Chinese, and extends considerably southward of it. Its introduction into Texas was the practical beginning of peach-culture. The South Chinese race extends a little below the region of the Spanish, being most valuable below the line of greatest success of the latter. This race comprises numerous choice varieties, and it is believed that it is the material from which to expect extra-early varieties for the South. The Peen To race occupies the extreme southern portion of the Southern Chinese range, and extends still

below it, where no other peaches are known to exist. It is not to be seriously doubted that it will thrive in a tropical climate side by side with the banana, orange, etc.—G. Onderdonk in American Garden, Feb. '92; p. 107.

PEACH—SEEDLINGS. We wish here to say that this is a clipping from Mr. Meehan's Monthly, while its able conductor was discussing the "Yellow in Peach Trees" and other diseases in controversy. Now we have been aware of this peculiar variety of peach in our midst for many years. It is unlike most varieties, and is quickly detected in its growth and character as well as in the tree. We find it much more robust, almost entirely free from "root knot," when trees are properly grown, and of a very uniform fruit, although all grown from seed; and have never been inoculated (by budding or otherwise) by the budded varieties that Mr. M. speaks of which are of different generalogy, of which class he attributes the degeneration by its use as a parent root stock.

It is a recognized fact among pomologists that by the use of Hybrids or cross breeds, or a generalogy of plants kept up, by the use of such as a stock or root on which to propagate it upon, is bound in time to degenerate, as for instance: The use of trees as stock, or roots, grown from seed of trees that have been for many generations perpetuated by budding and grafting are loosing much of their vitality, and although the tree itself as a bud may not evidence it. We find, in many, in fact, most instances of budded varieties of peaches, the vitality of the seed greatly impaired. Take the Crawfords, Early and Late, we find but few of the seed will germinate and grow, and in the latter especially, a large percentage of the seed are so imperfect, the pit will be burst open. But on the other hand examine a Spanish Seedling pit, and in a thousand seed, you will find scarcely a variation—especially when they are not influenced by contact with budded varieties. Every nurseryman claims to use nothing but the "seedling" pit, which is rather indefinite in its term. We find tons and tons of pits sent broadcast throughout the states from different canneries and even many car-loads go east. (For we have seen several car-loads of such shipped from this county; bought by a reputable(?) seed firm, not over 100 miles away), of the Colton Cannery as pits only good for "fire wood," and no less than three cars were shipped East at one shipment and some of them were almost as large as English walnuts, and we do not believe there was a "natural seedling" pit among the whole batch, and as evidence along this line we quote from the State report of 1892, page 322, 4th paragraph—last lines: "The pits of the various fruits, peaches especially, are carefully saved and sold to nurserymen, for propagating nursery stock."

The above is in reference to the cannery—how they utilize everything, Now all experienced ones know seedlings, seldom if ever, go to a cannery, as they are too small and are not the kind wanted—consequently tons of "seedling" pits are in fact "budded pits."

We have made a specialty of selecting our pits for our stock and have for 5 years secured the pits of one of the oldest orchards of seedlings in the state and there has never been a "bud" put in it. This orchard and a limited number near are of the old Spanish type; traceable back to a time before the art of budding was practiced and these old orchards speak for themselves, as to health and vitality; although neglected, they show the vitality of an oak. "Be sure you are right and then go a head." If you have the proper root you have the foundation; now commence your building.

EXPERIENCE. We have spent many years in the orchards of Southern California, and have talked to hundreds of fruit growers in our travels and we cannot lay down any set of varieties to suit all. One man wants all Early Crawfords, (as early variety) and no Fosters and the reverse with the next and so on; so we have selected from our very rich variety in Southern California such varieties as are universal favorites among the posted orchardists and have dropped from this year's list varieties that are

less favorably known, and we candidly believe that our using judgment in selecting, from this list, the seasons of ripening considered, cannot find a better variety, for South California, on the coast. We can furnish peaches that will supply fresh fruit from June till January and likewise we have attempted to perfect our entire list. We point back with pride to twelve years of active nursery life, and a few things we have learned, which we are trying to impart to others, and we append a few random notes that may help some in their selections.

Random Notes.

PRUNES.—Mrs. Alvin, Lordsburg; $1\frac{1}{2}$ acres prunes 8 years old; sold for \$750. Net profit, \$517.

APRICOTS.—M. B. Fassett of Ontario reports sales from 3 acres of apricots at \$1,100. The price sold for was 25 per cent. less than his neighbor received, he having contracted his early in the season.

APRICOTS.—J. L. Griffin of Chula Vista reports sales from $1\frac{3}{4}$ acres of apricots of 33,791 pounds at $1\frac{1}{4}$ cents per pound, or \$422.40, and when the report was given the crop was not all in.

OLIVES.—C. F. Eaton of Santa Barbara reports a 3-year-old olive tree bearing 10 gallons of berries, worth, pickled, 50 cents per gallon; 108 trees planted to the acre.

PRUNES.—Peter Hoops, Pomona; 2 acres prunes, 7 years old; 36,740 pounds green; 11,945 pounds dried; sold at 9 cents, \$1,075. Net profit, after paying all expenses, \$933.50, or \$466.75 per acre.

PRUNES.—Mr. Wheatley, Pomona; 2 acres prunes, 7 years old; 29,700 pounds green, 11,430 pounds dried; sold at 9 cents, \$1,028. Clear profit, \$987, or \$493 per acre.

PEACH.—Mr. Miller, Pomona; 250 peach trees; 38,270 pounds green, shipped to Chicago; net proceeds, \$956 for $2\frac{1}{2}$ acres. Property bought in 1889 for \$870.

PEAR.—Arthur L. Hooper, Los Angeles; three acres pear trees, 5 years old, \$750. Barley raised between trees paid all expenses.

PRUNES. Edward Dunham of La Canada reported selling his 10-acre prune crop, on the trees, at \$50 per ton, or \$2,000 for the lot.

PEACH.—R. F. Cunningham, San Bernardino; stated to us that he bought the peach crop off of a 4-year-old orchard (variety, Salway) at \$1 per tree. He picked and dried the same and cleared \$1 net, per tree. Making a total of \$216 per acre, net. We could fill this book with like testimony of our great industry.

PRUNES.—John Cox, La Cresenta; off of 300 prune trees, 7 years old; sold seven tons of dried prunes. Equal to about \$160 per acre.

Horticultural Items.

We believe more nursery stock gets damaged from drying than any other cause, and much stock shipped fails to grow or do well on account of getting dry while being dug. Many nurserymen dig for hours and expose stock to sun and wind, the latter being very dangerous to the vitality of the tree.

The advice of any honest nurseryman would be to procure your trees as close to home as possible. Whether your home be north, south, east or west, the tree grown in your neighborhood, *everything considered*, is no doubt the safest; but some nurserymen for pecuniary interest will try to influence your mind that a tree grown north or east or south (where ever his location) is the best. Such are frauds and they know the truth ain't in them.

The roots of a tree are often as extensive as its branches.

Every tree has "reserve buds," which develop at the point where a limb has been cut off.

Most people make the mistake of trimming trees and shrubs "up," when in nine out of ten cases they need trimming "down."

Great is the nurseryman whose interest does not cease upon the receiving payment for trees. He should advise his customer something of the care of the trees during the future, more especially in dry countries. By so doing he adds one more person to the horticultural circle and insures for himself a permanent customer; at the same time discourages the fellow who is in the business for what there is in it.

Newly planted trees should be "straightened up" after first good rain or irrigation and leaned to the prevailing wind. If this is not done they are more than apt to have a crook in them, and if leaned from the south to the north they are more subject to sun-burn, and boarers. In most all instances in Southern California lean the tree to the southwest a very little and the prevailing wind will operate so as to straighten it up. Lean peaches more than apricots, as the latter will grow to the wind in its limb growth.

Receiving Nursery Stock.

You have selected your varieties to take home, and now commences your duty. At once unpack and "heal in." This is done very simply and if kept any time we prefer to "heal in," standing the trees erect. Dig a trench about $1\frac{1}{2}$ ft. wide and plenty deep to receive all the roots below the surface, (be sure and get it deep enough); stand your trees upright therein and not more than 2 bunches side by side and leave plenty of room between all bunches to run a shovel between. Then fill with earth and turn in water and "puddle" down; and again cover all places when roots are exposed and your trees will keep a long time if you have a loamy soil, but if clay or adobe, be cautious about leaving air holes at the roots. Have the soil as firm around the roots as it was in the nursery. Now the next important thing is to get your trees properly set, which means your future prosperity.

PLANTING.

Planting trees is an important thing. Never scatter trees over the ground to dry out, but keep them covered and only take the trees out of cover as needed (unless it is cloudy or very moist day) and the danger of drying is not so great. Remember wind is as dangerous to the vitality of trees as the exposure to sun. Set each tree carefully. Spread out all fiber roots as well as larger ones; pack dirt firmly—more so if no irrigation is done at setting. Irrigation is the best method to pack the dirt firmly, but if this is not done only fill holes $\frac{2}{3}$ full and open up around tree-holes so the rain will drain into and fill same insuring a good job. After this setting is done go over every tree and fill up all cracks and holes caused by settling. Let them catch another good shower and then fill the hole level. Straighten up trees, leaning a trifle to prevailing wind—especially peaches and prunes; apricots grow to the wind.

Peach.

The Foster is our best early yellow peach. Reeve's Favorite is as popular as any producing in its season, excepting Muir. This last named peach is the universal favorite the State over for drying. The Lovell is a California peach and is spoken of as a peer of the Muir, and by some liked better. The Elberta is an old Georgia variety and grows very large; often 20 ounces and is an immense producer. These; but new here. The Wheatland is a very valuable acquisition to the drying list. The Wager is probably as well known as Muir and is as good. The Brandywine to our notion is the best late peach for drying we have. Such varieties as Late Crawford and these varieties following are too well known to need comment. The last two, Wilder and Wonderful, are practically new varieties on the coast, but are bearing with us and come at a season that there are none or but few other

varieties on the market. They have borne very heavy during the last two years, and are very fine fruit in flavor and size, and we can recommend them, and also the new varieties, Elberta and Lovell, and believe these two last are sure to rank with the Muir—where known.

MIX VARIETIES.

California Fruit Grower: Many writers on horticulture and practical orchardists hold that, by reason of defective pollenizing of the blossoms of both the Bartlett and Winter Nelis pear other varieties, as the Flemish Beauty should be mixed in the orchard, perhaps occupying every third row. It has been found also that some of the best varieties of almonds lack this essential feature, and that the best results are obtained by mixing varieties in the orchard.

It is quite probable that orchardists preferring a single variety of some choice fruit have not given the subject of imperfect pollenizing sufficient study. In a number of well authenticated instances, trees hitherto nearly fruitless have been brought into prolific bearing by introducing into the orchard other varieties of the same fruit as a potent fructifying agency.

RELATIVE VALUE OF ALMONDS.

California Fruit Grower: In our report of the proceedings of the January meeting of the State Horticultural Society mention was made of experiments by Mr. A. L. Bancroft regarding the ratio of kernel to shell in a number of varieties of almonds.

The J. K. Armsby Co., of this city has taken the matter up, and issued the trade a circular letter giving the classification of almonds and the relative values as determined by Mr. Bancroft's method. In regard to this the Armsby Co., says:

"The Tarragona almonds in this table, and the Princess paper shells are imported, all the rest being California almonds.

Almonds are divided into four classes, viz: Hardshell, softshell, thin-shell and papershell." (Class abbreviated below).

Class.	Variety.	Weight of kernel. Ounces.	Weight of shell. Ounces.	Relative value $\frac{p}{l}$ lb. Cents.	Percentage of value more or less than the Tarragona. Per cent. more.
S.	Tarragona	6.40	9.60	15.00
S.	Languedoc	7.50	8.50	17.50	16.66
T.	I X L	9.00	7.00	21.00	40.00
P.	Cal. papershell	10.00	6.00	23.25	55.00
P.	Ne Plus Ultra	10.00	6.00	23.25	55.00
P.	Princess papershell	10.25	5.75	23.88	59.00
P.	Nonpareil	11.13	5.3
P.	Nonpareil	when	5.00	27.33	82.00
		11.00			
P.	Nonpareil	when	4.00	28.25	87.50
		12.00			
P.	Nonpareil	when	3.00	30.40	102.5
		13.00			

OUR RESOURCES.

Let us see what the producers of fruit (including wines) realized in 1892. The following figures are the result of a careful computation, and are gleaned from exact sources:

PRODUCTION IN 1892.

Citrus fruits, 3485 carloads at \$360*.....	\$ 1 254 600
Prunes, 28,000,000 lbs. at 6c.....	1 680 000
Dried fruits, 65,000,000 lbs. at 6c.....	3 900 000
Raisins, 53,000,000 lbs. at 4c.....	2 120 000

Wines, 12,000,000 gallons at 16c.....	1 920 000
Green deciduous fruits, 5000 carloads at \$63½.....	3 385 000
Canned fruits, 1,600,000 cases at \$2.....	3 200 000
Miscellaneous, fruits consumed at home, etc.....	1 000 000
Total.....	\$18 602 000

*On a basis of \$1,50 per box for oranges.

‡This is based on the average price received by shippers of 1694 carloads through the California Fruit union and is the maximum. No separate account of the shipment of peaches, apricots, grapes, etc., was taken, and it cannot therefore be given. The large proportion was of course peaches.

Transplanting, Laying-off, etc.

IMPORTANCE OF THE WORK.

The operation preliminary to planting is laying-off and staking the ground. Upon the accuracy with which this is done depends the symmetry of your orchard as long as it exists. The neglect or carelessness of a few hours at this juncture may result in an "eye sore" for half a life time. Therefore, one can hardly be too painstaking. It is better for him to inform himself in advance of the various labor-saving devices which have resulted from the experience of others; than adopt some method which seems to him most feasible and consistently pursue it.

(SYSTEMS USED BY US IN OUR FIELD WORK.)

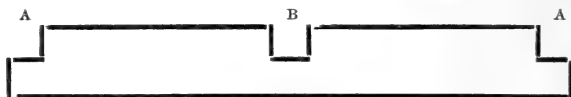
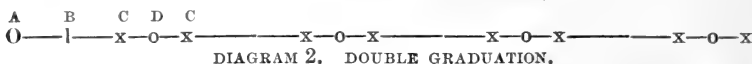
First thing to arrange is the planting chain. The chains we use are made of annealed wire, twisted, commonly called clothes line wire. These come in hanks of 100 ft. each, and having been unwound and neatly spliced to the desired length (we find 40 rods the extreme for practical use). The line is then stretched tightly (its full length preferred) and spaced off the desired distance the trees are to be set. We use a tape line; or a pole is good. We then take a straight sack needle threaded with budding twine; insert in the desired place, through the twisted wire. This twine cut off to 6 or 8 inches, wrapped two or three times around the wire and securely tied will not slip. Some times in large jobs we find it practical to use two strings as in design No. 2, (Design No. 1 being the common line). This line will appear as in figures 1 and 2.

The checks in the line are the graduations. Rope should never be used as the shrinking is very great. The next thing is to procure a planting board about 4 feet long. We generally use a 1x3 piece of lumber; cut to 4 feet 2 inches long, cutting out 1 inch deep square in center and 1½ inches out of corners as in diagram 3.

The next needed is small stakes for sticking in ground where the tree is desired. These should be about one foot long. A small light peg is all that is required and when the line is drawn these are placed carefully perpendicular at the graduation mark. We find it saves time to have a liberal supply of pegs as we lay-off, and either have what we call a double graduated line (as figure 2) or use the planting board, and set two stakes instead of the one where the tree is to be placed. In large jobs we prefer the double graduated line; and after the line is properly fixed we can set both stakes about as quickly as the one where the tree comes, and this has to be moved for digging. In figure 2 you will observe the double graduation. There is just 4 feet between tags. Now our planting board is just 4 feet between notches—thus the centre would be 2 feet from graduation mark on line or from notches on board. Cut the notches in board, carefully, 1 inch by 1½ inches deep, and if 3 inch board is used you have little difference as to which side you place your board; but we always use the board on the out side clear through a job as there is apt to be a trifle variation. We find it very handy to always have tree between you and your board. Always place your pegs on one side of the line through the entire job.

Reel.—Now your line is ready for field work, and a reel is a most convenient thing and in a big job a necessity. Our reel is made of 10 inch riveted iron, well pipe, 1 foot long; with heads tightly driven in that they will not turn, then nail a board 1 foot square with corners cut off making it somewhat of a circle over this and you have a perfect drum. Arrange a crank and set into a box (or sled) the right size and your line can easily be reeled up, and save much annoyance in shifting it.

We will now enter into detail of the different methods or systems used, as the square, quincunx, hexagonal and triangular systems; and we will emphatically say we prefer the square to all other systems, and if we want more trees to the acre we will put them on. Old horticulturists all know "roots go to the feed" and your land in due time is honey combed with feeding roots where moisture and feed are found.



QUINCUNX SYSTEM.

This system of planting is resorted to by those who have orchards already planted on the square system and who wish to increase the number of trees without enlarging the area or for the purpose of ultimately taking out the variety not wanted.

How to stake with this system.—Stake the two base rows the same as for square planting, except that you double the number of stakes. When the base lines are staked off insert an extra tag on them just half the distance you are planting, as shown in diagram number one at point B. Shifting the chain back and forth on base stake from A to B, this will bring the orchard in a regular quincunx order.

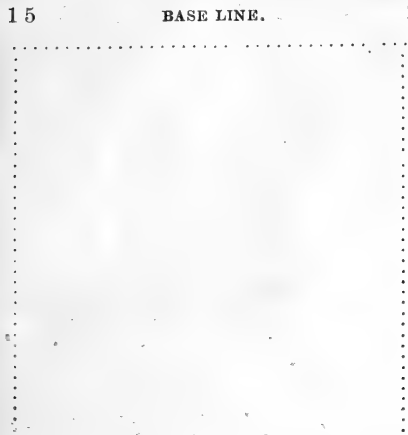
Septuple System, (Or seven groupings.)—To find the number of trees per acre add 15 per cent to square system. (See table on back cover.) It is in setting the stakes in the check rows or base lines that the difference between this and other systems occurs. This is explained in the figure and text following.

It will be seen that the trees are equal distances apart each way, and hence A B C is an equilateral triangle. The orchard being set on the septuple system, 20 feet apart, the stakes in the check rows should be 17 feet 4 inches. Having staked the base rows or check rows the required distance, proceed to stretch the chain and set the stakes exactly as described in quincunx planting. Remembering to pull out the alternate stake in the check row, when you are through with them. For convenience of reference the following table showing the distance at which the base stakes should be set for various spaces;

10 feet apart.....	8 feet 8 inches
12 feet apart.....	10 feet 4 2-5 inches
14 feet apart.....	12 feet 7-8 inches
16 feet apart.....	13 feet 10½ inches
18 feet apart.....	15 feet 7 inches
20 feet apart.....	17 feet 4 inches
21 feet apart.....	18 feet 2¼ inches
22 feet apart.....	19 feet 7-8 inches
24 feet apart.....	20 feet 9½ inches

Point A on chain is a large ring for putting over the base stake and the line is always made stationary by slipping this ring over the base stake and *always* pull the line the same direction. For instance: you are going to set a ten acres, (40 rods square) 20 feet apart, and your best base to work from is, say the north side and west corner; you have your corner stakes, pull your line between them—leave a distance you choose, say 14 feet, from your property line to the first row of trees and commence putting in your base stakes on the line east and west—pulling from the west.

Now a particular point comes,—to get your trees in a perfect square (as we find but few surveys stand this test), but you can to a measure, follow the variation. Now take your ring A and put over your last 20 foot base stake in the northeast corner and pull line south to point 3 diagram 4 and put a temporary peg and *mark line at this exact point*. Then go back to peg 1



2 (diagram 4) place loop A over it and pull line south to peg 4. In being sure of a rectangle, described elsewhere, from north base line, establish a southwest corner to a point marked on line from southeast corner by 3. Then pull your line east to intersect stake No. 3, leaving the distance of 14 feet from property line, as on north side and put in the second row of line stakes.

Now if all is done correct your south line is exactly parallel with north line, and distanced off the same. The balance of the work is very simple. Now go back to peg No. 5, or north base and pull your line south past peg 6. Whip the line straight, pull tight and make fast. Then *mark your line exact at intersection of peg 6*. Then put in small pegs at your graduation marks on line, and

4 6 SECOND BASE 3
DIAGRAM 4.

move to next row. **Caution.** Always pull the line exactly to the mark at interception of peg 6 and always pull the line the same direction and it is bound to come square.

Having left 14. ft from your property line on all sides you will have some thirty rows of trees each way. A greater distance should be left if gums are used on the lines or on lines that rank feeding trees are used. In and around our nursery often thirty feet is left from north wind-brake, which is generally of gums.

Establishing a rectangle.—Which may be done as follows. Fix upon your base line or any object it is desired to have the orchard along. This we call the base line.



DIAGRAM 5.

Extend the base line A B any distance, say 100 feet, B C; mark the points E and C equal distances from B, say 100 feet each. Then take a rope or chain longer than E B C (in this case 300 feet) with a knot or tag exactly in the middle. Fasten one end of the rope at E and the other end at C; draw the rope out as shown in E D C. The knot or loop being in the middle will fall at D, giving a perpendicular to the base line A E B C. By standing at B and sighting across B D the point F may be established at required distance, giving a corner of the orchard ground, and then, by measurement, the point G may also be fixed. You then have the boundary of the orchard in the form of the rectangle A B F G.

MANURE—BARNYARD.

A well-kept manure heap may be safely taken as one of the surest indications of thrift and success in farming and orcharding, and neglect of this resource causes losses which, though vast in extent, are little appreciated.

According to statistics the value of the manure produced annually by the different animals is as follows: horse \$27, cow \$19, hog \$12, sheep \$2. The fertilizing value produced annually, according to W. H. Beal of the Department of Agriculture, in his bulletin No. 21, from all such animals would be \$2,071,400,000.

These estimates are based on the values usually assigned to phosphoric acid, potash and nitrogen in commercial fertilizers and on the same subject estimates the loss of manurial properties of barnyard manure is one-third and more gives suggestions as to how to save this loss. We will endeavor to give a few hints and all those interested should procure this bulletin (Farm Bulletin No. 21) which is very valuable.

We find from this bulletin they estimate the value of each ton of carefully preserved fresh manure at from \$3 to \$7: hen manure being first, pig and sheep following.

The above was all protected from leaching and in some cases treated with gypsum as a preservative (to hold the ammonia.)

In general practice the manure from different kinds of animals is collected in a common heap until need and the care given thereto determines its value.

It is a fact often lost sight of in practice that the urine of animals is by far the most valuable part of the excreta, and all stables should be so arranged that the same drain into the "heap" or be absorbed by the bedding, and thus to the "heap." Such manure should never be leached, but placed under cover, or so arranged as to not lose these properties. This can be avoided to a great extent by careful management. The use of a few pounds of gypsum sprinkled over the heap every day or so, assists in holding much of the ammonia; about 2 pounds per day will be about right. Every farmer's barnyard should have a reservoir or pit, properly cemented, that all stable manure should be thrown in, and all excrement from the stable drained therein.

Having such an arrangement the heap could be kept wet and the leaching (that is impossible to avoid) could be saved, and by a properly arranged pit could again be thrown over the heap and this would prevent the "fire-fanging."

Where it is practical to haul the manure from the stalls or pen and spread it on the orchard at frequent intervals, the losses of valuable constituents need not be very great; but when it must be stored for some time the difficulties of preservation become greatly increased.

Under these conditions deterioration of manure results from two causes:

1.—Fermentation, whereby a certain amount of the nitrogen is lost; and 2.—weathering or leaching, involves the loss of the soluble fertilizing constituents, including potash, phosphoric acid and nitrogen.

We have experimented with hauling fresh manure direct to orchard and

other than the inconvenience of the straw to choke the cultivator, we have found the best results. This is of course on irrigated lands, where water is plentiful, and a good wetting is done after manure is spread.

The fermentation of manure is due to the action of microscopic organisms which belong to two classes:

1—Those which require an abundant supply of air (oxygen) and which die when deprived of it—known as aerobic ferments; and 2—those which grow without oxygen and die when exposed to it—known as anaerobic ferments.

The higher the temperature the more rapid will manure decay. In aerobic fermentation the temperature may rise from 122 to 140 or even 158 F. On the other hand in the winter when anaerobic fermentation of the heap is in progress the temperature seldom rises above 90 F.

Experiments indicate that 131 is the most favorable temperature for manure fermentations.

A powerful means of controlling fermentation is the supply of moisture. The addition of water lowers the temperature and retards the fermentation.

Good authorities maintain that the principle precaution necessary to prevent losses of ammonia consists simply in regularly and properly watering the manure with the leachings. In case of drouth, if the leachings are insufficient the lack should be made up with water. The common and harmful "fire-fanging" is the result of an insufficient supply of water and may be readily checked by sprinkling. The sprinkling should be regularly done, the heap kept in a constant state of moisture, but be cautious of any excess.

The manure stored in a heap under cover loses 14 per cent of its nitrogen in 12 months; exposed in a heap 30 per cent and exposed in a thin layer 64 per cent.

Commercial Fertilizers.—We will not consume but little space thereto, as all purchasers of such can soon learn from fertilizer works how best to spread it, and the essential parts thereto. We will not endeavor to give any specific directions as to how it should be applied or what to apply, as your crop is to be taken into consideration. For orange fertilizer we prefer the superphosphates, they are lasting and if properly manipulated prove very satisfactory in our messa soils.

One of the best ways, says Mr. Bell, to utilize barnyard manure is to combine it with such materials as supplement and conserve its fertilizing constituents. The best results are likely to be obtained by using commercial fertilizing material in connection with barnyard manure, either in compots, or seperately. As is well known barnyard manure is lasting in its effect. The more soluble and quick-acting superphosphates, potash and nitrogen salts, makes more soluble the manure and the whole has the advantage of one counter-acting the other's extremes.

Morris' Nurseries Catalogue.

APPLES.

WINTER.

Yellow Belleflower.
Esopus Spitzenberg.
Kentucky Red.
Winesap
Nick-a-Jack.

Baldwin.
Newtown Pippin.
Stone's Eureka.

Missouri Pippin.
Northern Spy.
Little Red Romanite.
Glenn's Seedling.
W. W. Pearmain.

FALL.

Gravenstein.
Talman Sweet.

Jonathan.
Ulster's Red.

Wagener.
Rhode Island Greening.

SUMMER.

Early Harvest.

Red June.

Red Astrachan.

CRABS.

Yellow Siberian. Red Siberian. Transcendent. Martha.

APRICOTS.-- On peach root.

Hemskirk, July 20. Royal. July 1st. 8 to 20. Peach, July 10.
Early Golden, July 20. Large Early, June 10. Luizete.

The last is of recent introduction, but to use the words of the French Society of Horticulture, "the Luizete is the most perfect apricot and best bearer grown in most of localities."

NECTARINES.-- On peach root.

Lord Napier.

Hardwick.

PEACHES.

CROWN ON SPANISH PEACH SEEDLING ROOTS.

The best root in the land, [See page 5]. Ripening about in order mentioned. We call attention to the large list of varieties and also to the journal of ripening of our fruit. By the assistance of some of our most prominent growers and our experimental grove we are enabled to append the seasons of ripening as they appear in southern California, which will meet with a long felt want, among new planters and also adding value to this list. Keep this for reference. [See page 7].

WHITE FREE-STONES.

Brigg's Red May.....June 10th to 20th.
Tillitson.....July 1st to 10th.
River's Early.....July 10th.
Edith (new).....July 20th.
George The IV.....July 20th.

The above are almost exclusively used for table and early market, and are

seldom dried; but the three following varieties are of local fame in east San Bernardino valley; as fine driers as well as good table fruit:

- ? Early Stump..... August 1st to 20th.
- ? Late Stump August 24th.
- White Heath—Free..... September 30th.

YELLOW FREE-STONES.

- Early Imperial..... July 1st.
- Foster..... July 10 to 20th.
- Crawford Early..... 25th.
- Reeve's Favorite..... August 1st.
- * Lovell..... August.
- Muir..... August 10th to 30th.
- * Elberta (or 20 oz.)..... August 25th.
- * Wheatland, (all sold)..... August 15th.
- Wager..... August 10th to 30th.
- Late Crawford..... August.
- Susquehanna..... September.
- Brandywine..... August 25th.
- Smock's..... September 10th.
- Salway..... September 20th to October 10th.
- Wonderful..... September 10th.
- Wilder..... September 20th.

*New varieties of late introduction in Southern California and are especially recommended.

CLINGS.

- Orange, or Golden..... September 1st.
- Lemon Cling..... September 15th.
- White Heath..... October 10th.
- New Blood..... September 25th.
- White Newington..... August 10th to 30th.
- Persian (White).....
- ? Rosenberg (fine yellow)..... September 20th.

Plums and Prunes.—On peach root.

- French Petite [Purple]..... Sep^rember to October.
- Robe de Sargent [Purple]..... September.
- Tragedy [Purple]..... July 15th.
- Botan [Red]..... July.
- Simon [Red]..... September.
- Hotanko [Green—new]..... September.
- Silver [Green]..... September.
- Kelsey's [Gr en]..... September 1st to October.
- Satsuma Blood [Red]..... July.
- Red Egg [Red]..... September.
- Burbank [Red]..... July.

Almonds.

HATCHE'S SEEDLINGS.

All the following are buds from his famous orchards:

Nonpareil. Ne Plus Ultra. I X L. La Prima. California Soft-shell.
(See comparative list, page 8).

Walnuts.

*Seedlings grown from the best selected seed:

English.

Improved Soft-shell.

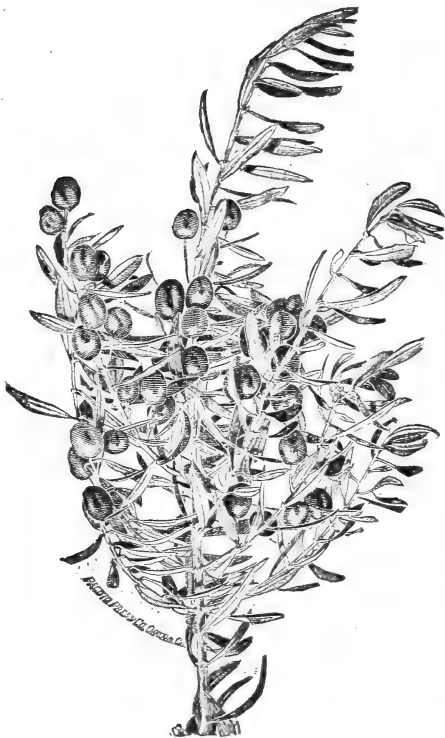
Chestnuts.

SEEDLINGS.

Italian, or Spanish.

Japanese Mammoth.

OLIVES.



Mission.	Nevadillo.
Manianillo.	Columella.
Regalis.	Rubra.
Rogga.	Precox.
Pendulina.	Uvaria.
Oblonga.	

Citrus Fruits.

ORANGES.

Washington Navels.
Maltese Blood.
Mediterranean Sweet.
Valencia. St. Michael.
Japanese Hardy Orange.

LEMONS.

Villa Franca. Lisbon.
Eureka.
Our lemon stock is very fine
and we bespeak examination.
Citron of Commerce.—We
have these varieties: the Ama-
lfia, Calabria, and Sorrento, in
first class shape. These trees
are the varieties from the De-
partment of Agriculture, but
have not borne for us as yet.

GRAPES.

EASTERN.

Concord.	Delaware.	Niagara.	Catawba.	Isabella.
Fifteen cents each; ten for one dollar, eight dollars per hundred.				

FOREIGN.

Muscat.	White Malaga.	Sultana.	
Thompson's Seedless.	Zantee Currant.	Sweetwater.	
Black Hamburg.	Mission.	Rose of Peru.	
Flame Tokay.	Emperor.	Verdal.	
Zinfandel.	Black Morocco.	Black Malvoisa.	Cornishan.

Price of Muscat, \$15.00 per 1000; Sultana, \$18.00 per 1000; Thompson's Seedless, \$25.00 per 1000; other varieties, ten cents each, \$5.00 per 100.

FIGS.

Black California.	Brown Smyrna.	White Smyrna.
White Adriatic.	San Pedro.	

Tropical and Semi-Tropical Fruits, Etc.

GUAVAS.

Strawberry.

Pear.

Apple.

In 3-inch, 4-inch and 6-inch pots, and also in flats of 50 and 100 each. 3 cents to 25 cents.

Loquats.—In 4 to 6-inch pots, also in seed boxes and plants 2 feet to 4 feet balled. 25 cents to \$1.00.

Passiflora Edulis.—One of the most handsome dense climbing plants we grow, and fruit is good to eat. In pots, 50 cents.

Raspberries.—Cuthbert.

Blackberries.—Kittatinnig. Lawton.

Strawberries.—Mon. of West. Buback. Wilson's Albany. Sharpless. Jessie. Australian Everbearing. 25 cents per dozen, \$1.50 per 100 except Australian Everbearing, ten cents each.

Currants.—Black Naples. White Dutch. Red Dutch. Cherry. 10 cents.

Mulberry.—Russian. Downing. Persian. 10 to 25 cents.

Pomegranates.—Each, 25 to 30 cents.

ORNAMENTAL DEPARTMENT.

FOR STREET, LAWN and PARK.

We grow an extensive stock of the above as is found in Southern California, and can be sure to suit you. We herewith catalogue a few of our specialties, and prices will be given on application for such not fully quoted.

Grevillea Robusta

—Australian tree fern—Price 5 cts. to 25 cts. in 2 to 6 inch pots.

Casuarina. (Three varieties)

—She Oaks of Australia Belongs to the pine family; an extremely ornamental, large-growing tree. 50 cts. in 6 inch pots.

Pepper Trees.

All sizes. 5 cts. to 25 cts.



GREVILLEA ROBUSTA.

Hibiscus.—*Rosa Sinensis*—a half hardy bushy plant very fine. 25 to 50 cents.

Dracaena Indivisa. Very hardy and of Tropical appearance; grows 10 to 20 feet. 6 inch pots, 50 cents, open ground \$1.00.

Dracaena, Australus and **Rubra**, in considerable stock, 50 cents each.

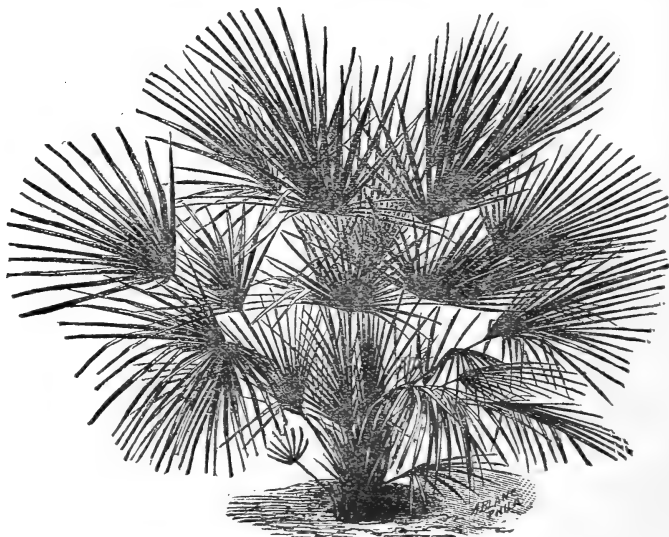
Dracaena, Arborea. Tree **Dracaena.** Leaves dense, $1\frac{1}{2}$ to 3 feet long, 3 inches wide, a tall variety.

Dracaena, Draco. Dragon Blood Tree. Canary Island and India. The famous Dragon tree of Orotava was 60 feet high and the stem was 15 feet in diameter. This is without doubt one of the most remarkable of trees, with broad, thick leaves, satisfactory for sub-tropic gardening, entirely new here. Small plants in 6 inch pots 50 cents.



HIBISCUS.

PALMS.



CHAMAROPS HUMILIS.

Brahea, Glauca, of Mexico, the choicest of all palms, something like the common California fan palm, without threads, and of a silver color, very distinct.

Brahea Edulis, of Mexican Islands, very showy and grand.

Chamaerops, Canariensis, from Canary Island.

do **Excelsa**, of Southern Japan and China. Attains a height of 12 feet, very hardy and showy. 50 cents to \$1.50.

- do *Gracilis*. A most graceful and beautiful palm.
- do *Robusta*.
- do *Humilis Arborea*. The little tree palm.
- do *Humilis*. The dwarf fan palm of Southern Europe and

China, of which the fan is made,

Corypha, Australis. The best of the foreign fan palms. It grows rapidly, attains a height of 100 feet and is quite hardy; fan like leaves, dark green, and armed with stout spines,

Latania Borbonica. A Chinese species. The most popular palm in cultivation for decorative work.

Oreodoxa Regia. The "Glory of the Mountains," the Palm Real of Spanish West Indies. Royal Palm, one of the grandest of pinnate leaves.

Phoenix. The Date Palm. We unhesitatingly recommend the genus

Phoenix for the most extensive cultivation in the open air in the south, and for the conservatory and green-house in the north. All are of exceedingly rapid growth, comparatively; are strong, healthy, robust palms, standing considerable cold and neglect. Of the following the *Dactylifera* is the date palm of Commerce, but like nearly all plants, will not come true to species from seed. Also thousands of the common date, of all sizes.

Phoenix, Canariensis, and all the following are quite hardy here. This is also a fruit palm.



PHOENIX CANARIENSIS.

Phoenix, Canariensis Macrocarpa.

- do *Tenuis*; similar to *Reclinata*.
- do *Dactylifera*. Common date, 15 cents to \$1, small plants \$12 per 100.
- do *Reclinata*. A beautiful variety of Natal, South Africa. Fine fruit.
- do *Sylvestris*. Bengal and Ceylon, the wild date. Very useful

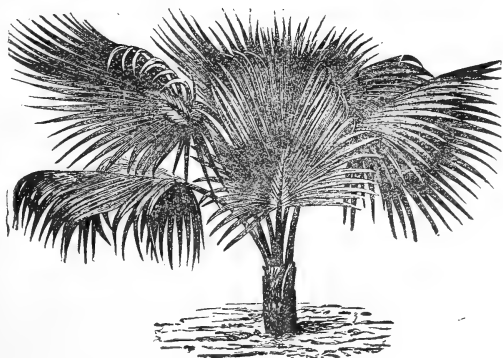
species, furnishing sugar.

Sabal, Adansoni. The dwarf palmetto of Florida.

Sabal, Palmetto. The cabbage palmetto of Florida and Bermuda.

Washingtonia, Robusta. In great quantities and special prices to trade; 25 cents.

Washingtonia, Filifera. California fan palm. The most robust of all fan palms. Specially low to the trade. We have also seeds to these varieties. Prices on application; 15 cents to \$1.



SABAL, ADANSONI.

Cycas Revoluta. One of the choicest of all Cycas; \$2.50 to \$20; decorative plants. (See front cover.)

On all the above palms prices will be quoted according to size and character of plants, some being very valuable and scarce. Special prices for quantities. We have for sale as fine a stock of the above as is for sale on the Coast. Prices from 75 cents to \$1.50; a fine lot at \$2.50.

Yucca, Alœfolia. A very choice variety of the Yucca. 25 cents to \$1.

do **Recurva Glauca.** The most handsome of the Yuccas; very hardy here, grows quite large; leaves drooping, of a silver color; beautiful, \$1.

Yucca, Draconis, similar to R. Glauca; very fine.

Yucca, Alœfolia, variegated; an erect, strong growing variety, leaves very stiff, sharp pointed, with light green variegation, a very fine sort, scarce.

Bamboo. Of Japan, in several varieties, 50 cents to \$1.

Bamboo. Giant.

Musa Enseta. Giant Abyssinian, banana; very large, leaves growing stout compact and erect. \$1 to \$2.

Agave, (Century Plant.) American; the common variety, 25 cents.

do **Varagata,** the variegated variety.

do **Shawii.** The finest of the Agave dwarf sort; very dark, \$1 to \$2.



YUCCA.

CLIMBING PLANTS.

Ampelopsis Veitchi. Boston Joy, 20 cents.

Passiflora Edulis. One of the most valuable hardy varieties we grow. Price, 50 cents, in pots.

Physonthus Albans. Cruel plant. A good vine, 25 cents.

Bignonia Thumbergia. Trumpet creeper. This variety will climb up anything, its tendrils taking root. 25 cents.

Ficus Repens. Rubber tree climber, a very pretty small growing plant, growing upon a wall or glass. 5 cents.

Cinnamon Vine. A bulbous climber of good growth. 15 cents.

Chinese Wisteria. Blue. A rank (deciduous) vine, covering in its native country spaces 25 to 50 feet in circumference. 25 to 50 cents.

Moon Flowers. Several varieties, 25 cents each.

Potato Vine. (Solanum.) A good vine, 25 cents.

Honeysuckle. In variety, 25 cents.

Smilax. (Florists.) 10 cents per bunch of roots.

Roses Rene Mar. Henriette, (R.) La Marque, (W.) Cloth of Gold, (Y.) Mar. Neil, (Y.) Reve de 'Or (R.) and others, 25 to 50 cents. See special list.

HEDGE PLANTS.

At the head of the list we place the

Citrus Trifoliata. The Japanese Hardy Orange. For protection around orange groves it has no equal, being very thorny, and stands drouth remarkably well; very quick grower, and quite ornamental, with flowers and small fruit, with which it is most constantly covered. (See back of cover,

and for further description see oranges). \$30 per 1000, 2 years old, also a good stock to bud the lime, and making it much more hardy.

Privet. California. In boxes of 100, \$2; open ground, large, per 100, \$2.50.

Privet. Japanese. *Ligustrum Jap.* Leaves larger and plants more showy than the above. A very nice hedge plant. \$3 per 100 for large plants.

Monterey Cypress. The most common hedge plant used in California. In boxes of 100 plants, \$1.50; also larger in 4 and 6 inch pots, 10 cents.

Euonymus Japonica. In 5 varieties, as Golden, Variegated, Silver Variegated and plain green; these are vigorous growing plants. \$5 per 100.

Euonymus. Nanus. (*Pulchellus.*) A very dwarf variety, and very superior to the English Box in appearance and vigor; one of the finest hardy plants for border or low hedge, never over 16 inches, of dark green; \$3 100.

Arbor Vitæ. In several varieties, \$5 per 100 for small plants 2 years old, and larger 25 cents to \$1.

LILIES AND BULBS.

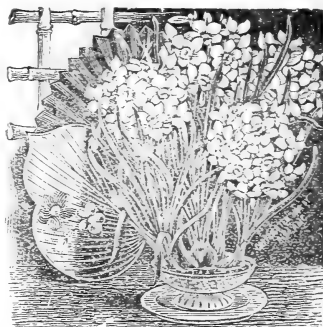


PINK SPIDER LILY.

Pink Spider Lily. *Nerine Japonica*, *Lycoris*, *Amaryllis*, etc., properly *Lycoris Radiata*, Japanese name Hegan Bornea, meaning Fall Lily, deep pink, approaching scarlet. It increases fast, in a few years makes handsome clumps of grassy foliage. During spring and the hotter months it is at rest, but in early fall shoots up flower spikes and continues blooming for some time. It makes a very desirable lily for the border or walk and mixed with the *Zephyranthus*, which blooms through the early spring and summer, followed by this gorgeous spider flower, one has lilies the summer through, with continued delight. 6 for 50 cents, \$7.50 per 100. This lily figured in the *American Gardening*, of April, 1892, as a novelty of particular merit, by the eminent authority, Prof. C. C. Georjeon, late of Japan Royal Botanical Gardens, and completes the article by saying: "In September

some weeks after the leaves have withered, it sends up a scape some nine inches or a foot tall, crowned with an umbel of bright red flowers. Petals narrow, stamens larger than petals, and pistil larger than stamens. The root is a cluster of bulbs, with close layers. * * It is a showy, autumn flower, which is worthy of notice in this country for ornamental planting." And we may add that they have bloomed with us, and this queer flower has given us great delight.

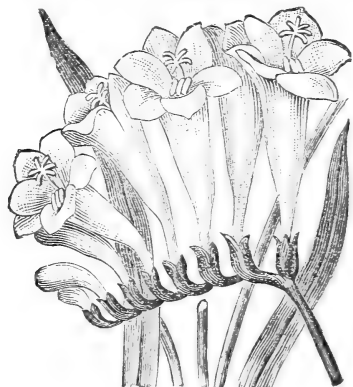
Narcissus (The Chinese Sacred Lily). This variety, as well as most of the Narcissus, are just at home in California, and bloom and grow in greatest profusion. This is one of the earliest flowers that we can have, and really can be made to bloom most any time, but the natural way is to transplant to a warm situation after having been well dried—during fall—and then given water in abundance. The Oriental method of handling this bulb for early flowering



CHINESE SACRED LILY.

—on their New Year—is to dry the bulbs well during fall, and those wanted for use are placed in clumps—never separated!—into deep dishes with clean pebbles over the bulbs, and then keep an abundance of fresh water in the dish, and set in the window or in warm situations, and you will be well repaid for your pains. Single bulbs, 10 to 20 cents each; \$5 to \$8 per 100.

Freesia Refracta Alba. Probably the most fragrant of the lily family. 10 cents, 3 for 25 cents,



FREESIA REFRACTA ALBA.

ROSES.

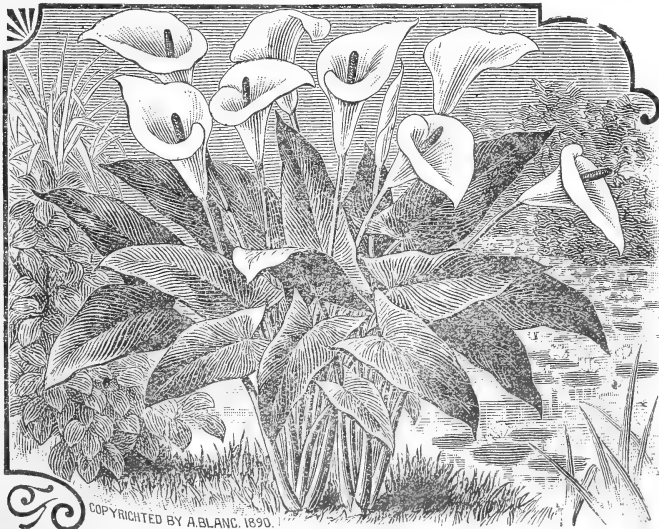
Under this head we will offer several thousand finely rooted 1 and 2 year old plants, both from open ground and in 5 and 6-inch pots, and prices very according to plants, etc.; but the more common variety of everbloomers we quote here at 25 cents for open ground plants, and 35 cents for potted plants; three for \$1. We also have a fine lot of them in 3-inch pots, which will be about 20 cents each, or seven for \$1, in general assortment.

LIST OF ROSES.

	COLOR.
Cloth of Gold.....	Golden Yellow.
La Marque.....	White.



Climbing Devonensis	White Tea
Marshal Neil	Yellow
Reve d'Or	Yellow
Reine Marie Henrietta	Red
Climbing Captain Charity	White
Salfatare	Sulphur Yellow



COPYRIGHTED BY A. BLANC. 1890.

CALLA LILY.

The Calla is the delight of all that love the early flowers. The successful management is very simple and easy in Southern California, being unnecessary to ever transplant for fear of frost. Plant where needed and give plenty of water in growing season, with plenty of fertilizer. Stable manure is good. 15 cents each; two for 25 cents; potted, 25 cents each; \$1.25 per dozen. Special quotation to the wholesale trade.

Lilium Harrisii, or Easter Lily. A very early pure white lily. Perfectly hardy. 25 cents.

Lilium Auratum, or Golden Banded Lily of Japan. 25 cents.

And a general assortment of Japanese lilies of our own importation.

Gladiolus. Of this fine and gorgeous flower we have some of the finest varieties in cultivation, including many of Lemoines seedlings. Mixed colors, in flowering bulbs; each, 10 cents; \$1 per dozen.



JAPANESE LILY.



COPYRIGHTED 1890 BY A. BLANC.

ZEPHYRANTHUS.

Tuber Roses. Pearl. 10 cents each; three for 25 cents.

Iris, Japanese. In many varieties. Prices according to variety.

Blue African Lily. *Panacratum Undelatum*. A remarkable fine lily; resembling the Pink Spider, only blue. Hardy. 25 cents each.

Hyacinths. We have a fine stock of these in pots, that will bloom in early spring and give great delight. 20 cent each; three for 50 cents seven for \$1.

Zephyranthus. This is the "Fairy Lily" or Grass Lily, and is one of the most continuous blooming lillies we know of, being in bloom from early spring till fall, and is a beautiful plant. Of these we have two varieties—the pink, and white. Pink 15 cents each; white, 5 cents each; \$2 per 100.

ILLUSTRATION.—The quincunx figure is thus illustrated.



FIG. 6—QUINCUNX.

Extended in a regular group it becomes the following:

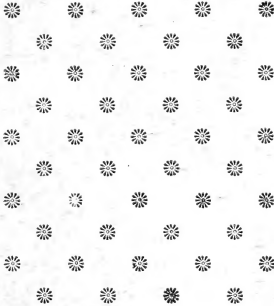


FIG. 8—QUINCUNX ORCHARD.

ILLUSTRATION.—The septuple group is thus illustrated.

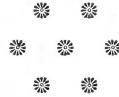


FIG. 7—SEPTUPLE GROUP.

An ocular demonstration is given in the following:

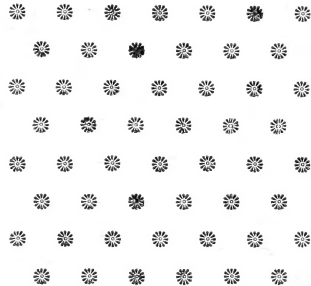
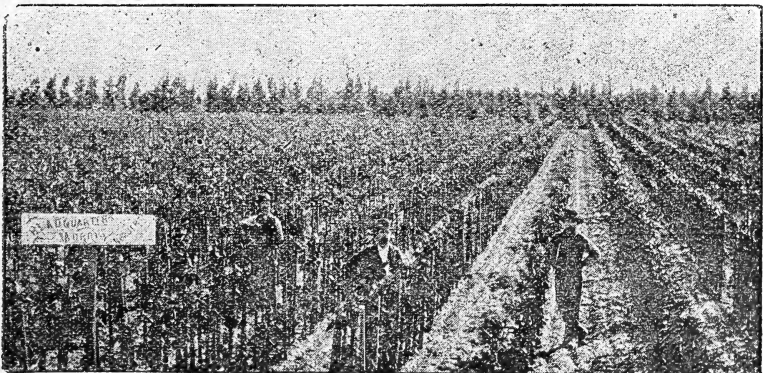


FIG. 9—SEPTUPLE ORCHARD.





TREES AND PLANTS TO THE ACRE.

No. feet apart.	Square.	Septuple.
10.....	435	500
12.....	302	347
14.....	222	255
16.....	170	195
18.....	134	154
20.....	108	126
21.....	99	114
22.....	90	103
24.....	75	86
30.....	48	56

RULE.

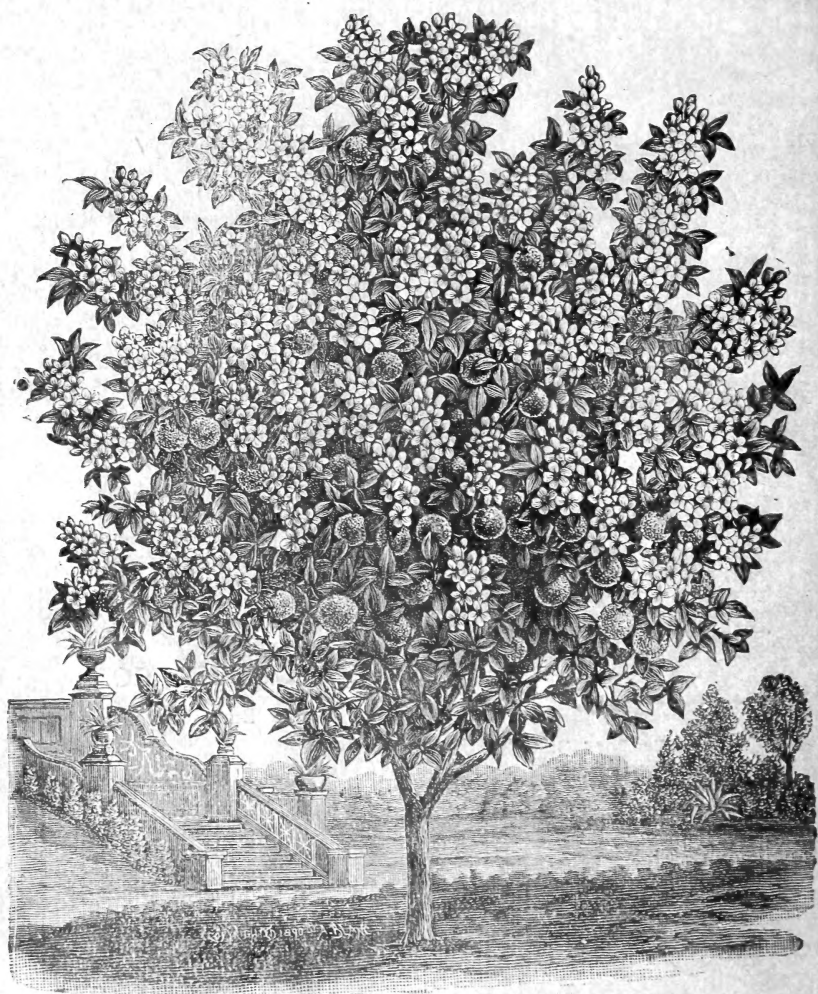
Multiply the distance in feet between the rows by the distance the plants are apart in the rows, and the product will be the number of square feet for each plant or hill; which, divided into the number of feet in an acre (43,560) will give the number of plants or trees to the acre.

Yours Respectfully,

MORRIS NURSERY CO.

SAN BERNARDINO, CAL.

Post office Box 1073.
Telephone to Nursery, 57.



CITRUS TRIFOLIATA. BEARING ORANGE TREE.